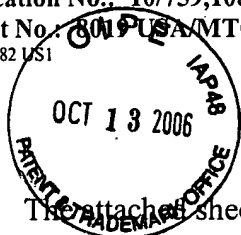


Application No.: 10/759,108

Docket No.: 8019 USA/MTCG/PCTRL/JW  
107262.182 US1

PATENT/OFFICIAL



AMENDMENTS TO DRAWINGS

The attached sheet, labeled as "Replacement Sheet," includes changes to Figure 1 and replaces the original sheet including Figure 1. In Figure 1, a legend labeled as "Prior Art" is included.

**REMARKS**

In the specification, paragraphs on page 8, lines 12–21; page 13, lines 8-15; and page 20, lines 6-13 have been amended to correct minor editorial problems.

In amended Figure 1, a legend “Prior Art” has been added.

Having amended claims 3, 16, 21, 23 and 29, claims 1-16 and 18-35 remain pending in the present application. Applicant believes no issue of new matter should arise and entry of the amendment is respectfully requested.

***Claim objections***

Claims 3, 21, 23 and 29 are objected to because of informalities.

Claim 3 has been amended to read as follows:

3. The method of claim 1, wherein act ~~(e)~~(d) is performed automatically.

Claim 21 has been amended to read as follows:

21. The system of ~~claim 19~~claim 19, wherein the DOE sytem is further configured to create a model based on the time-scaled collected data, the imported data, and user input.

Claim 23 has been amended to read as follows:

23. The system of claim 22, wherein the DOE sytem is ~~furthered~~further configured to generate automatically the design set of experiments based on the user selected parameters and set of data to be collected.

Claim 29 has been amended to read as follows:

29. The medium of ~~claim 28~~claim 28, further comprising the instructions for implementing the act of:

automatically creating a model based on the imported data and user input.

***Rejection under second paragraph of 35 USC §112***

Claims 16 and 18-24 are rejected under 35 USC §112, second paragraph, as being indefinite. Specifically, the Examiner notes that the limitation “the collected data” in claim 16 lacks sufficient antecedent basis. Claim 16 has been amended to include antecedent basis for the limitation and is no longer indefinite.

Claims 18-24 depend on claim 16 either directly or indirectly and are deemed to be allowable on the basis of the amendment to claim 16.

***Rejection under 35 USC §101***

Claims 16 and 18-24 are rejected under 35 USC §101 as being directed to a non-statutory subject matter. In view of the amendment to claim 16 as implicitly suggested by the examiner, the rejection under 35 U.S.C. §101 is obviated, and claim 16 fully satisfies the requirements of 35 U.S.C. §101. Withdrawal of this rejection is respectfully requested.

***First Rejection under 35 USC §103(a)***

Claims 1-4, 6-13, 16, 19-26, and 28-24 are rejected under 35 USC §103(a) as being obvious over Goldman et al. (US 2002/0128805), hereafter “Goldman,” in view of Tan, L.; Cameron, D.; and McCorkell, C., “Steady –State Regression Analysis and Optimization of Multivariate Plasma Etching System,” IEEE (1994): 1986-1991, hereafter “Tan.” Applicants respectfully traverse the rejection and respectfully submit that the alleged combination of the cited references does not disclose each element of the recited claims. Applicants discuss the rejection below as it applies to independent claims 1, 12, 13, 16, 25, and dependent claims 2-11, 18-24 and 26-34.

Claim 1 recites “time-scaling the collected data to make the collected data a linear function of time ....” The Examiner admits that Goldman does not disclose “time-scaling” or linearization of collected data and only discusses a “data regression.” It is respectfully submitted, however, that the term “make the collected data a linear function of time” was incorrectly interpreted to mean “linear time-invariant system (LTI system).” The specification discloses that the “user can specify if the [DOE] factors are time-based or constant value” and

that the “time-based parameter is a parameter that has linear output values in function of time.” (Specification, Page 9, lines 3-4) The specification does not suggest that the system, where the DOE factors are time-based, is a linear time-invariant system (LTI system). For a time-invariant system, the specification specifically discloses that “the user can specify if the factors are ... constant value” and “[f]or the constant valued parameter, the value of the designated parameter is set at a specific value through out the experiment.” (Specification, Page 9, lines 2-8)

With regard to claim 1, the Examiner further asserts that the term “time-scaling the collected data” is interpreted to mean “scaling the collected data (output data) in order to transform a non-linear system into a linear time-invariant system.” In contrast, the specification discloses that “if the parameter is actually not a linear function in time, the collection of the output values can be time scaled to ensure that the collected data appear as a linear function in time ... [to] remove any non-linearity in the collected data.” (Specification, Page 9, lines 4-6) The specification neither teaches nor suggests “scaling the collected data (output data) in order to transform a non-linear system into a linear time-invariant system,” as asserted by the Examiner.

The Examiner asserts that Tan teaches the time-scaling feature that is missing in Goldman. Tan neither teaches nor suggests the use of a time-scaling feature to collected data. Tan observes that the “time scale for movement of material and chemical reaction in a plasma are short, on the order of fractions of a second to several second for typical processes.” (See Tan, page 1988, column 2) Tan makes “[m]easurements of the plasma parameters employed in the ... modeling studies” and calculates the process variables to “estimate the time constant [] for the system.” Tan admits that the “actual time constants are not well known, but it is expected that these will be too small to be treated by a process control system.” Tan does not “time-scal[e] the collected data to make the collected data a linear function of time,” but instead teaches that these “transients can be ignored and only steady states will be managed....” (See Tan, page 1988, column 2) Unlike the claimed invention, Tan teaches away from the limitation of “time-scaling the collected data to make the collected data a linear function of time ...,” as recited in claim 1. As discussed above, Goldman does not disclose the need for “time-scaling the collected data” and is only concerned with data regression. There is no suggestion in Goldman that time-scaling is a component of the data regression disclosed and is further confirmed by the Examiner

admission that time-scaling is “not necessarily an inherent step.” Hence, the proposed combination does not show or suggest the combination of features recited in claim 1.

Similar arguments apply to independent claims 12, 13, 16 and 25.

Claims 2-11, 18-24 and 26-34 depends directly or indirectly from claims 1, 12, 13, 16 and 25, and is deemed to be allowable for the reasons discussed above as well as the additional limitations cited therein.

In view of the above, Applicants respectfully submit that claims 1-4, 6-13, 16, 19-26, and 28-24 are unobvious over the cited references and respectfully request that the rejection under 35 USC §103(a) of these claims be withdrawn.

***Second Rejection under 35 USC §103(a)***

Claims 5, 14, 15, 18, 27 and 35 are rejected under 35 USC §103(a) as being obvious over Goldman in view of Tan and further in view of Daft et al. (US 2003/0154062), hereafter “Daft.” Applicants respectfully traverse the rejection and respectfully submit that the alleged recombination of the cited references does not disclose each element of the recited claims.

Claim 5 depends from claim 1 and is allowable for the reasons discussed above. In addition claim 5 recites “importing one or more designed experiments from an external system,” as further claimed. The Examiner admits that nothing in Goldman and Tan teaches or suggests importing designed experiments from an external system, and argues that Daft remedies these deficiencies. (Office action, page 29)

Without conceding that Daft discloses any of the features of the present invention, Daft states that the “DOE controller 26 comprises a regression tool which generates transfer functions ... from simulation based data,” and the “DOE controller can automatically import the DOE data and produce  $Y=f(x)$ .” (Daft, [0046]) Daft also states that the “DOE controller further comprises a transfer function tool which imports the generated transfer functions ....”(Daft, [0046]) In contrast, the claimed invention is concerned with “importing one or more designed experiments from an external system,” as recited in claim 5. Unlike the claimed invention, Daft is not concerned with importing designed experiments from an external system and is only concerned

with importing DOE data from regression tool and transfer functions from transfer function tool, both of which are comprised in the DOE controller. Thus, the prior art does not show or suggest the combination of limitations recited in claim 5.

Similar arguments apply for claims 14, 15, 18, 27 and 35.

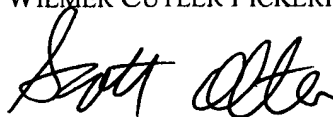
In view of the above, Applicants respectfully submit that claims 5, 14, 15, 18, 27 and 35 are unobvious over the cited references and respectfully request that the rejection under 35 USC §103(a) of these claims be withdrawn.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees, which may be required for this Amendment, or credit any overpayment to deposit account no. 08-0219.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to deposit account no. 08-0219.

Respectfully submitted,  
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